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EXAMINER	
LU, ZHIYU	

ART UNIT	PAPER NUMBER
2618	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,858	HAYASHI ET AL.	
	Examiner	Art Unit	
	ZHIYU LU	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4,5 and 7-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,5 and 7-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-2 and 4-5 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claim 7 is objected to because of the following informalities:

In line 2, replace "claims 1 to 5" with claims --1-2 and 4-5--.

Appropriate correction is required.

Priority

3. Applicant is advised of possible benefits under 35 U.S.C. 119(a)-(d), wherein an application for patent filed in the United States may be entitled to the benefit of the filing date of a prior application filed in a foreign country.

Should applicant desire to obtain the benefit of foreign priority under 35 U.S.C. 119(a)-(d) prior to declaration of an interference, a certified English translation of the foreign application must be submitted in reply to this action. 37 CFR 41.154(b) and 41.202(e).

Failure to provide a certified translation may result in no benefit being accorded for the non-English application.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 7 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, applicants claim a first waveform corresponds to either 0 or 1 in lines 3-4. In lines 5-6, applicants then claim a second waveform corresponds to the other/opposite of whatever the first waveform corresponds to. In lines 7-10, applicants claim a third waveform being the other of “said codes 0 or 1 expressed by the second waveform”, which is opposite to the second waveform. But according to the filed specification, see Fig. 2B, the third waveform corresponds to 11 when the first waveform and the second waveform correspond to 0 and 1 respectively. Thus, claim 1 is indefinite.

Claim 7 is hybrid claims because dependences are claimed on any one of claims 1-2 and 4-5. However, claims 1-2 and 4-5 are method claims, and claim 7 is an apparatus claim. It is indefinite on whether claim 7 is claimed as method claims or apparatus claims.

The same reason goes to claim 10, wherein claim 10 is a method claim depending on claim 7, an apparatus claim.

For examination purpose, the Examiner has treated claims 7 and 10 as independent claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 7 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Shanks et al. (US2002/0152044).

Regarding claim 7, Shanks et al. anticipate a noncontact RF ID system which uses the communication method according to claim 1, comprising:

a reader (104 of Fig. 1) for transmitting data information that include data and a clock (paragraphs 0392); and

a transponder which receives the data information from the reader comprising an antenna (1010a-b of Fig. 10) for receiving the signal from a reader, a DC power detecting circuit, a signal detecting circuit (paragraphs 0127-0128), an input amplifier (paragraph 0367), a clock generating device (1026 of Fig. 10), a demodulator (1021 of Fig. 10, paragraph 0144), a control logic circuit (1024 of Fig. 10), and a memory (1020 of Fig. 10), wherein

the DC power detecting circuit comprising a power accumulating capacitor that activates the transponder when a signal is received (paragraphs 0127-0128);

the clock generating device that generates an internal clock such that the state transition of the internal clock is generated in synchronism with the timing of the rise of the modulating signal (paragraphs 0391-0393); and

the control logic circuit that operates in synchronism with the state transition of the clock generated by the clock generating device (paragraphs 0391-0393).

Regarding claim 10, Shanks et al. anticipate a method of transmitting and receiving modulated data information comprising a first waveform, a second waveform, and a third waveform (Figs. 3-5, paragraphs 0096-0103); and responding to the reader a data after forming the data information in the transponder when necessary (paragraphs 0073-0074), in the noncontact RF ID system as explained in the response to claim 7.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shanks et al. (US2002/0152044).

Regarding claim 8, Shanks et al. teach the limitation of claim 7.

Shanks et al. teach a transmitter (Figs. 1-2, 10-11) in the noncontact RF ID system that forms and transmits data information comprising a first waveform, a second waveform, and a third waveform, wherein:

the first waveform and the second waveform are formed by a basic waveform that has a state transition that either rises or falls at the approximate center part of the waveform (Figs. 3-4); and

transmission is carried out by using the third waveform in place of the firstwaveform and the second waveform in the case in which transmission is carried out using the first waveform and the second waveform and in the case in which said one state transition is generated outside the approximate center part of the waveform (Figs. 3-5, paragraphs 0096-0103).

But, Shanks et al. do not expressly disclose the third waveform is formed by a plurality of basic waveforms that have one state transition at the approximate center part of the waveform and said one state transition is generated only at the approximate center part of the plurality of basic waveforms.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the third waveform of Shanks et al. into formed by a plurality of basic waveforms that have one state transition at the approximate center part of the waveform and said one state transition is generated only at the approximate center part of the plurality of basic waveforms by design preference.

Regarding claim 9, Shanks et al. teach the limitation of claim 7.

Shanks et al. teach a receiver (Figs. 1-2, 10-11) in the noncontact RF ID system that receivesdata information comprising a first waveform and a second waveform, and a third waveform, wherein:

the first waveform and the second waveform are formed by a basic waveform that has a state transition that either rises or falls at the approximate center part of the waveform (Figs. 3-4); and in the case in which the third waveform is received, the receiver recognizes the reception of a combination of the first waveform and the second waveform in which said one state transition has occurred outside the approximate center of the basic waveform (Figs. 3-5, paragraphs 0096-0103).

But, Shanks et al. do not expressly disclose the third waveform is formed by a plurality of basic waveforms that have one state transition at the approximate center part of the waveform and the one state transition is generated only at the approximate center part of the plurality of basic waveforms.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the third waveform of Shanks et al. into formed by a plurality of basic waveforms that have one state transition at the approximate center part of the waveform and the one state transition is generated only at the approximate center part of the plurality of basic waveforms by design preference.

7. Claims 1-2, 4-5 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ng (US2003/0011474) in view of Shanks et al. (US2002/0152044) and Balme et al. (US Patent#4373154).

Regarding claim 1, Ng teaches a communication method for a noncontact TF ID system (Fig. 1) comprising:

communicating a data sequence having a first waveform which corresponds to one of codes “0” or “1” and which has a length of time T (Logic ‘1’ of Fig. 8);

communicating a data sequence having a second waveform which corresponds to one of codes “0” or “1” opposite to the first waveform and which has a length of time T (Logic ‘0’ of Fig. 8); and

communicating a data sequence having a third waveform (logic ‘SYN’ of Fig. 8).

But, Ng does not expressly disclose the third waveform which corresponds to m (m is a natural number equal to or greater than 2) codes which are same code as the second waveform and which has a length of time mT; and wherein the first waveform with 50% duty ratio is in a low level state at a starting point, is in a high level state at an end point and rise only at a position of T/2, the second waveform with 50% duty ratio is in a high level state at a starting point, is in a low level state at an end point and falls only at a position of T/2, and the third waveform with 50% duty ratio is in a low level state at a starting point, is in a high level state at an end point and rises only at a total of m positions of T/2+nT (n=0, …, m=1).

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the waveform of Ng into the waveform as specified in this claim by one’s design preference.

Shanks et al. teach a third waveform corresponds to null (Fig. 5), which could obviously represent all zeros.

Balme et al. teach using a waveform to correspond to a succession code (Fig. 10A, column 22 lines 29-33).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the third waveform of Ng into the code succession representation taught by Shanks et al. and Balme et al. as specified in claim by one's design preference for representation in signal waveform coding.

Regarding claim 2, Ng, Shanks et al., and Balme et al. teach a communication method for a noncontact RF ID system as explained in response to claim 1 above.

Regarding claim 4, Ng, Shanks et al., and Balme et al. teach the limitation of claim 1. Ng, Shanks et al., and Balme et al. do not expressly disclose in the case in which the state transition is rising, the first waveform is a waveform that maintains a low level in a negative time direction for T/2 from the point in time that the waveform first rises, which is a center point of the waveform, and maintains a high level state for T/2 in a positive time direction from this center point;

the second waveform is a waveform that maintains a high level state in the positive time direction for t1 from a point in time that the waveform first rises, which is the center point of the waveform, maintains a low level state for time t2 until an end point of the waveform, maintains a low level state in the negative time direction for time t1 from the center point of the waveform, and maintains a high level state for time t2 until a starting point of the waveform (here, t denotes time, T denotes one cycle of the first and second waveforms, and t1 + t2 = T/2); and

the third waveform is a C(2n) waveform which, in the case in which m=2n, maintains a high level state in the positive time direction for t6 from the point in time that the waveform first

rises; maintains a low level state in the negative time direction for t3 from the point in time that the waveform first rises; maintains a high level state for time t4 until the starting point of the waveform; maintains a high level state in the positive time direction for t(2 (n - k) + 6) from the point in time that the waveform rises for the (n + 1 – k)th time; maintains a low level state for t (2 (n - k) + 3) in the negative time direction from the point in time that the waveform rises for the (n + 1 – k)th time; maintains a high level state in the positive time direction for T/2 from the point in time that the waveform rises for the nth time; maintains a low level state in the negative time direction for t(2 (n - 1) + 3) from the point in time that the waveform rises for the nth time; maintains a high level state in the positive time direction for t(2 (n - 1) +3) from the point in time that the waveform rises for the (n + l)th time; maintains a low level state in the negative time direction for T/2 from the point in time that the waveform rises for the (n + l)th time; maintains a high level state in the positive time direction for t(2 (n - k) + 3) from the point in time that the waveform rises for the (n + k)th time; maintains a low level state in the negative time direction for t (2 (n - k) + 6) from the point in time that the waveform rises for the (n + k)th time; maintains a low level state in the negative time direction for t6 from the point in time that the waveform rises the last time; maintains a high level state in the positive time direction for t3 from the point in time that the waveform rises the last time; and maintains a low level state for time t4 until an end point of the waveform, where n and k are natural numbers; n >= k >= 1; t is time; T is one cycle of the first and second waveforms; and t3 + t4 = T/2; t(2 (n - k) + 5) + t(2 (n - k) + 6) = T (when n and k >= 2); and

in the case in which m = 2n + 1, the third waveform is a C(2n + 1) waveform that maintains a high level state in the positive time direction for t6 from the point in time that the

waveform first rises; maintains a low level state in the negative time direction for t3 from the point in time that the waveform first rises; maintains a high level state for t4 from the starting point of the waveform; maintains a high level state in the positive time direction for t(2 (n - k) + 6) from the point in time that the waveform rises for the (n + 1 – k)th time; maintains a low level state in the negative time direction for t(2 (n - k) + 3) from the point in time that the waveform rises for the (n + 1 – k)th time; maintains a high level state in the positive time direction for t(2 (n - 1) + 5) from the point in time that the waveform rises for the (n + 1)+ time; maintains a low level state in the negative time direction for t(2 (n - 1) + 5) from the point in time that the waveform rises for the (n + 1)th time; maintains a high level state in the positive time direction for t(2 (n - k) + 3) from the point in time that the waveform rises for the (n + 1 + k)th time; maintains a low level state in the negative time direction for t(2 (n - k) + 6) from the point in time that the waveform rises for the (n + 1 + k)th time; maintains a low level state in the negative time direction for t6 from the point in time that the waveform rises the last time; maintains a high level state in the positive time direction for time t3 from the point in time that the waveform rises the last time; and maintains a low level state for t4 until the end point of the waveform; (where n and k are natural numbers, n >= k >= 1, t is time, T is one cycle of the first and second waveforms, t3 + t4 = T/2, and t(2 (n - k) + 5) + t (2 (n - k) + 6) = T).

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first waveform, the second waveform, and the third waveform of Ng, Shanks et al., and Balme et al. into as specified in this claim by design preference.

Regarding claim 5, Ng, Shanks et al., and Balme et al. teach the limitation of claim 1.

Ng, Shanks et al., and Balme et al. do not expressly disclose in the case in which the state transition is a falling state transition, the first waveform is an inverted waveform that maintains a low level in a negative time direction for T/2 from the point in time that the waveform first rises, which is a center point of the waveform, and maintains a high level state for T/2 in the positive time direction from this center point;

the second waveform is an inverted waveform that maintains a high level state in the positive time direction for t1 from the point in time that the waveform first rises, which is the center point of the waveform, maintains a low level state for time t2 until the end point of the waveform, maintains a low level state in the negative time direction for time t1 from the center point of the waveform, and maintains a high level state for time t2 until the starting point of the waveform (here, t denotes time, T denotes one cycle of the first and second waveforms, and t1 + t2 = T/2); and

the third waveform is an inverted C(2n) waveform which, in the case in which m=2n, maintains a high level state in a positive time direction for t6 from the point in time that the waveform first rises; maintains a low level state in the negative time direction for t3 from the point in time that the waveform first rises; maintains a high level state for time t4 until the starting point of the waveform; maintains a high level state in the positive time direction for t(2 (n - k) + 6) from the point in time that the waveform rises for the (n + 1 – k)th time; maintains a low level state for t (2 (n - k) + 3) in the negative time direction from the point in time that the waveform rises for the (n + 1 – k)th time; maintains a high level state in the positive time direction for T/2 from the point in time that the waveform rises for the nth time; maintains a low level state in the negative time direction for t(2 (n - 1) + 3) from the point in time that the

waveform rises for the nth time; maintains a high level state in the positive time direction for t(2 (n - 1) +3) from the point in time that the waveform rises for the (n + 1)th time; maintains a low level state in the negative time direction for T/2 from the point in time that the waveform rises for the (n + 1)th time; maintains a high level state in the positive time direction for t(2 (n - k) + 3) from the point in time that the waveform rises for the (n + k)th time; maintains a low level state in the negative time direction for t (2 (n - k) + 6) from the point in time that the waveform rises for the (n + k)th time; maintains a low level state in the negative time direction for t6 from the point in time that the waveform rises the last time; maintains a high level state in the positive time direction for t3 from the point in time that the waveform rises the last time; and maintains a low level state for time t4 until the end point of the waveform, where n and k are natural numbers', n >= k >= 1 ; t is time; T is one cycle of the first and second waveforms; and t3 + t4 = T/2; t(2 (n - k) + 5) + t(2 (n - k) + 6) = T (when n and k >= 2); and in the case in which m = 2n + 1, the third waveform is an inverted C(2n + 1) waveform that maintains a high level state in the positive time direction for t6 from the point in time that the waveform first rises; maintains a low level state in the negative time direction for t3 from the point in time that the waveform first rises; maintains a high level state for t4 from the starting point of the waveform; maintains a high level state in the positive time direction for t(2 (n - k) + 6) from the point in time that the waveform rises for the (n + 1 – k)th time; maintains a low level state in the negative time direction for t(2 (n - k) + 3) from the point in time that the waveform rises for the (n + 1 – k)th time; maintains a high level state in the positive time direction for t(2 (n - 1) + 5) from the point in time that the waveform rises for the (n + 1)th time; maintains a low level state in the negative time direction for t(2 (n - 1) + 5) from the point in time that the waveform rises for the (n +

1)t.11 time; maintains a high level state in the positive time direction for t(2 (n - k) + 3) from the point in time that the waveform rises for the (n + 1 + k)th time; maintains a low level state in the negative time direction for t(2 (n - k) + 6) from the point in time that the waveform rises for the (n + 1 + k)th time; maintains a low level state in the negative time direction for t6 from the point in time that the waveform rises the last time; maintains a high level state in the positive time direction for time t3 from the point in time that the waveform rises the last time; and maintains a low level state for t4 until the end point of the waveform; (where n and k are natural numbers, n >= k >= 1, t is time, T is one cycle of the first and second waveforms, t3 + t4 = T/2, and t(2 (n - k) + 5) + t (2 (n - k) + 6) = T).

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first waveform, the second waveform, and the third waveform of Ng, Shanks et al., and Balme et al. into as specified in this claim by design preference.

Regarding claims 7-10, as dependent claims, Ng, Shanks et al., and Balme et al. teach a noncontact RFID system, a transmitter, a receiver, and a method as explained in responses above.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZHIYU LU whose telephone number is (571)272-2837. The examiner can normally be reached on Weekdays: 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Z. L./
Examiner, Art Unit 2618

/Nay A. Maung/
Supervisory Patent Examiner, Art Unit 2618

Zhiyu Lu
July 10, 2008